DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012983
Date Inspected: 12-Apr-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 1100
OSM Departure Time: 1930
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girders

Summary of Items Observed:

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the W1/W2 and W3/W4 field splices:

A). Welding and QC/NDT of the Field Splice W1 to W2.
B). Assembly Fit-up of Field Splice W3 to W4.

A) Welding of Field Splice W1/W2

The QAI observed the Shielded Metal Arc Welding (SMAW) and the Submerged Arc Welding (SAW) processes of the bottom plate field splice identified as Weld Number (WN): 1W-2W-D. The Complete Joint Penetration (CJP) groove welding was performed utilizing the SMAW process in the area of the weld access hole of the longitudinal stiffeners located on the bottom plate of the Orthotropic Box Girder (OBG) for a measured length of approximately 250mm. The SMAW was performed by AB/F welding personnel James Zhen ID-6001 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1040C Rev. 1. The WPS was also used by the AB/F Quality Control (QC) Inspector Bonifacio Daquinag as a reference when performing QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the CJP welding of the groove joint identified as B-U2a. The QAI observed the QC inspector verifying the welding parameters during the fillet welding and the average amperage was noted as follows: 150 amps. Later in the shift the contractor commence the SAW of the above mentioned bottom plate splice and was performed by the welding operator, Jordan Hazelaar ID-2135, utilizing the WPS ABF-WPS-D15-4042B-1. The QC inspector performed the welding verification by recording

the amperage and voltage which were observed and noted by the QAI as follows: 550 amps 32.3 volts and the travel speed was measured as 370 mm/minute. The QC inspector also monitored the surface temperatures during the field welding and the following was observed and noted by the QAI: the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

The QAI also observed the Ultrasonic Testing (UT) of the transverse CJP weld on side plate field splice identified as WN: 1W-2W-A. The testing was performed by the QC technician Steve McConnell and James Cunningham utilizing a Krautkramer USM 35. The QAI observed the UT technicians perform the required longitudinal and shear wave scanning technique during the testing which was performed utilizing a 1" diameter to perform base metal soundness and a .75 x .75 rectangular transducer used for the angle beam technique for weld soundness. The technician performed the testing utilizing the longitudinal and transverse scanning techniques as per the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4.

B) Assembly Fit-up of the Field Splice W3/W4

The QAI also observed the fillet welding of the fitting gear to the bottom plate field splice to be utilized during the alignment process of the field splices. The work was performed on the weld joint identified as WN: 3W-4W-D. The welding and the assembly fit-up was performed by Rick Clayborn ID-2773 utilizing the SMAW process during the welding as per the WPS ABF-WPS-D15-F1200A Rev. 1. The WPS was also used by the QC inspector Mike Johnson as a reference to verify the DCEP welding parameters and were noted as follows: 131 amps. Later in the shift the QAI observed the QC inspector verify the surface temperatures and appeared to comply with the contract documents were noted as follows: 20 degrees Celsius (preheat temperature) and the maximum interpass temperature of 230 degrees Celsius.

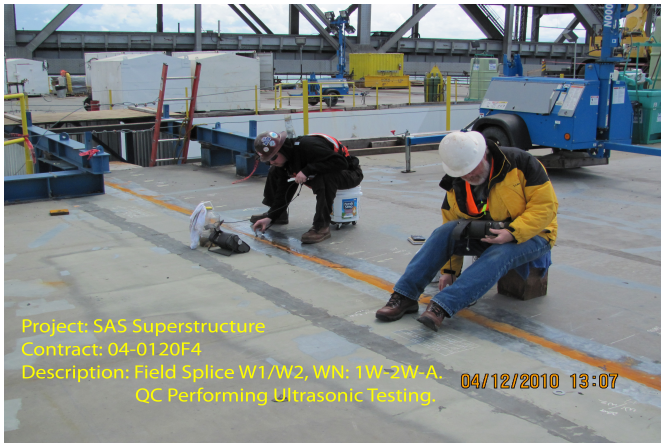
QA Observation and Verification Summary

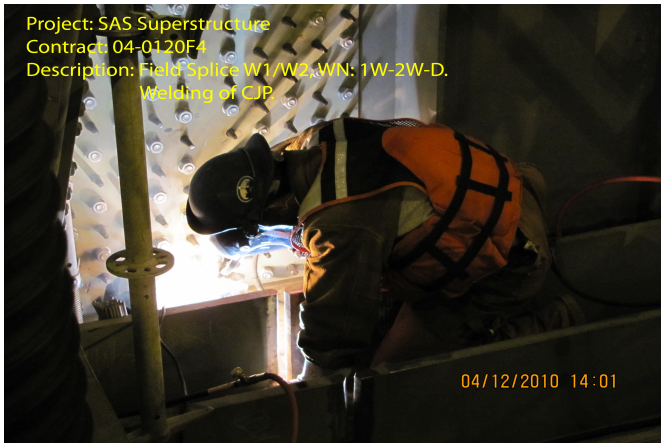
The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector's and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the SMAW and SAW process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift was not completed and appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs on page 3 of this report illustrate the work observed during this scheduled shift.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)





Summary of Conversations:

There were no pertinent conversations discussed in regards to the project except as noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer